Amendments to the Claims

1. (Previously Presented) A process comprising

a) providing, in a suitable container, cells that express a hyperpolarization-activated cation channel;

b) hyperpolarizing the cells in the presence of a potential-sensitive fluorescent dye and an isoosmolar sodium-ion-free buffer;

c) optionally, determining the membrane potential of the cells;

d) simultaneously adding sodium ions and a sample containing at least one substance to be tested for its ability to modulate the activity of the cation channel;

e) determining the membrane potential of the cells;

f) determining whether the membrane potential changed upon simultaneous addition of sodium ions and the substance(s); and

g) optionally, recording the change in membrane potential, wherein a change in membrane potential indicates the presence of at least one substance in the sample that modulates the activity of the cation channel.

2. (Original) The process of claim 1, wherein step c) is performed.

3. (Original) The process as claimed in claim 1, wherein the isoosmolar sodium-ion-free buffer comprises a potassium salt.

4. (Original) The process as claimed in claim 1, wherein the isoosmolar sodium-ion-free buffer comprises potassium ions at a concentration of at least 0.8 mM.

5. (Original) The process as claimed in claim 1, wherein the isoosmolar sodium-ion-free buffer comprises potassium ions at a concentration of at least 5 mM.

6. (Original) The process as claimed in claim 1, wherein the isoosmolar sodium-ion-free buffer comprises choline chloride or NMDG (N-methyl-D-glucamine).

7 – 8 (Canceled)

9. (Currently Amended) The process as claimed in ~~claim 8~~ claim 1, wherein the potential-sensitive dye is an oxonol derivative.

10. (Original) The process as claimed in claim 9, wherein the oxonol derivative is a 3-bis-barbituric acid oxonol.

11. (Original) The process as claimed in claim 10, wherein the 3-bis-barbituric acid oxonol is bis-(1,3-dibutylbarbituric acid)trimethine oxonol [DiBac$_4$(3)], bis-(1,3-diethylthiobarbituric acid)trimethine oxonol [DiSBac$_2$(3)], bis-(1,3-dibutylbarbituric acid)pentamethine oxonol [DiBac$_4$(5)], or a combination of these.

12. (Currently Amended) The process as claimed in ~~claim 8~~ claim 1, wherein the potential-sensitive fluorescent dye used is suitable for use in fluorescent imaging plate reader system.

13. (Original) The process as claimed in claim 1, wherein cells having an elevated intracellular cAMP concentration are used.

14. (Original) The process as claimed in claim 13, wherein the intracellular cAMP concentration is increased by addition of dibutyryl-cAMP or 8-bromo-cAMP.

15. (Original) The process as claimed in claim 13, wherein the intracellular cAMP concentration is increased by addition of an adenylate cyclase activator.

16. (Original) The process as claimed in claim 13, wherein the intracellular cAMP concentration is increased by addition of forskolin.

17. (Original) The process as claimed in claim 16, wherein the intracellular cAMP concentration is increased by addition of from 1 pM to 100 pM of forskolin.

18. (Original) The process as claimed in claim 13, wherein the intracellular cAMP concentration is increased by addition of receptor ligands.

19. (Original) The process as claimed in claim 1, wherein the hyperpolarization-activated cation channel is HCN1, HCN2, HCN3, HCN4, KAT1, ora heteromultimer of these channels.

20. (Original) The process as claimed in claim 1, wherein the hyperpolarization-activated cation channel is a human hyperpolarization-activated cation channel.

21. (Original) The process as claimed in claim 1, wherein the cells are mammalian cells.

22. (Original) The process as claimed in claim 21, wherein the cells are CHO or HEK cells.

23. (Original) The process as claimed in claim 1, wherein the cells contain a plasmid which comprises the cDNA of a hyperpolarization-activated cation channel.

24. (Previously Presented) The process as claimed in claim1, wherein the cells comprise a second plasmid, which comprises the cDNA of a hyperpolarization-activated cation channel.

25. (Previously Presented) The process as claimed in claim 24, wherein the cells comprise a second plasmid, which comprises the cDNA of a different hyperpolarization-activated cation channel, such that heteromultimeric HCN channels can be formed.

26. (Previously Presented) The process as claimed in claim 1, wherein the cells comprise a plasmid, which comprises synthetic cDNA encoding at least part of at least two different cation channels.

27. (Previously Presented) The process as claimed in claim 1, wherein a change in membrane potential is measured using a potential-sensitive fluorescent dye.

28. (Previously Presented) The process as claimed in claim 27, wherein the potential-sensitive fluorescent dye is an oxonol derivative.

29. (Previously Presented) The process as claimed in claim 28, wherein the oxonol derivative is 3-bis-barbituric acid oxonol.

30. (Previously Presented) The process as claimed in claim 1, wherein at least one measurement is carried out in a Fluorescent Imaging Plate Reader (FLIPR).

31. (Previously Presented) The process as claimed in claim 1, wherein the change of the membrane potential of at least two cells is compared.

32. (Previously Presented) The process as claimed in claim 1, wherein the process is a high-throughput screening process.

33 – 50 (Canceled)

51. (Previously Presented) The process as claimed in claim1, wherein the hyperpolarization-activated cation channel is HCN1, HCN2, HCN3, HCN4, KAT1, or a heteromultimer of these channels.

52 – 65 (Canceled)